

Notice of Allowability	Application No.	Applicant(s)	
	09/940,381	ALAVI ET AL.	
	Examiner	Art Unit	
	Phuong Phu	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/16/04.
2. ☒ The allowed claim(s) is/are 2-10, 12-20 and 22-27.
3. ☒ The drawings filed on 27 August 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

REASONS FOR ALLOWANCE

1. This Office Action is responsive to the Amendment filed on 11/16/04.
2. Claims 2-10, 12-20 and 22-27 are allowed.
3. The following is an examiner's statement of reasons for allowance:

References (6683921), (20040008618), (6381288), (6487255), (6393599) and (6735255) are additionally cited because they are pertinent to the claimed invention.

-Regarding to independent claim 6, none of prior art of record teaches or suggest a method comprising step of computing an arithmetic combination of the real value component and the corresponding imaginary value component to detect whether a series of bits falls within a selected region of the complex phase map defined by the at least one boundary constraint line, the detection of the complement combination of an addition of the real value component and the imaginary value component, in combinations with other steps recited in the claim.

-Regarding to independent claim 9, none of prior art of record teaches or suggest a method comprising step of performing a channel estimation operation on a carrier propagating a plurality of symbols, including the current symbol and the previous symbol, by counting a number of symbols that fall within an estimated area of the complex phase map, the estimated area being bounded by boundary constraint lines based on a parameterized real value component, in combinations with other steps recited in the claim.

-Regarding to independent claim 12, none of prior art of record teaches or suggest a method comprising step of detecting a first series of bits if an arithmetic combination of the real value component and the corresponding imaginary value component falls within a first selected region of the complex phase map defined by the at least one boundary constraint line, the

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detecting of the first series of bits includes detecting a sign bit of the arithmetic combination being a signed 2's complement combination of an addition of the real value component and the imaginary value component, in combinations with other steps recited in the claim.

-Regarding to independent claim 15, none of prior art of record teaches or suggest a system comprising, in combinations, a logic unit, a QPSK demodulator unit, a BPSK demodulator unit, a first selection unit and a second selection unit, in associated with limitations recited in the claim.

-Regarding to independent claim 16, none of prior art of record teaches or suggest a method comprising, in combinations, steps of separating, computing, counting and determining, in associated with limitations recited in the claim.

-Regarding to independent claim 20, none of prior art of record teaches or suggest a system comprising, in combinations, a first software module, a second software module, a third software module and a forth software module, in associated with limitations recited in the claim.

-Regarding to independent claims 22, 24 and 26, none of prior art of record teaches or suggest a method as claimed. Hendrickson et al (6055281), previously cited, fails to teach the limitation "receiving a multi-tone signal by a fast fourier transform (FFT) logic; and outputting symbols for each carrier of the multi-tone signal", in combinations with other limitations recited in the claims. It would not have been obvious for one skilled in the art to implement Hendrickson et al in view of other prior art of record in order to make such an implementation leading to the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (6:30-2:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuong Phu

Phuong Phu
01/20/2005

PHUONG PHU
PRIMARY EXAMINER

Phuong Phu
Primary Examiner
Art Unit 2631